

A review of the Japanese *Tychobythinus* and *Bythoxenites* (Coleoptera, Staphylinidae, Pselaphinae)

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A review of the Japanese *Tychobythinus* and *Bythoxenites* (Coleoptera, Staphylinidae, Pselaphinae). – *Tychobythinus* is represented in Japan by 3 species, with *T. japonicus*, described as new. *Bythoxenites* holds 10 species and is widely distributed in Japan. The group is defined by the presence of a single pair of foveae at the base of the 4th abdominal ventrite and of an internal aedeagal ridge. The type species of *Bythoxenites*, *B. japonicus*, is known from a cave, but most species inhabit moist forest floor litter. Eight new species of *Bythoxenites* are described: *B. lougicornis*, *B. torticornis*, *B. diversicornis*, *B. pubiceps*, *B. brevicornis*, *B. brevipilis*, *B. breviceps* and *B. frontalis*. Keys to Japanese genera of Bythinini and to Japanese species of *Tychobythinus* and *Bythoxenites* are provided.

Key-words: Coleoptera - Staphylinidae - Pselaphinae - Bythinini - taxonomy - Japan.

INTRODUCTION

The last and most complete account of the Japanese Bythinini is by JEANNEL (1958). He treated two genera, the monobasic *Bythoxenites* Jeannel and the widely distributed *Bryaxis* Kugelann with 14 species in Japan. Since, NOMURA (1995) described an additional Japanese species of *Bryaxis*, *B. kintaro*. Thus, the knowledge of the Japanese Bythinini appears inadequate, compared to that of the Taiwanese (LÖBL & KURBATOV, 1995; 1996) or Far East Russian Bythinini (KURBATOV, 1994).

A large amount of additional material of Bythinini has since been collected in Japan. It consists mainly of numerous species of *Bryaxis*, however, a number of specimens belonging to *Tychobythinus* Ganglbauer and *Bythoxenites* have been found also and are treated in the present paper.

MATERIAL AND METHODS

The material examined is deposited in the Muséum d'histoire naturelle, Geneva (MHNG), except for several paratypes of *Bythoxenites brevicornis*, *B. diversicornis* and *B. frontalis* which are also in the private collection of the junior author (CSKM).

The measurements are taken as follows: total length from the anterior clypeal edge to the abdominal apex; length of the head from the anterior clypeal edge to the dorsal transverse ridge of the neck when the neck is exposed, or to the edge of the neck constriction when the base of the neck is concealed in dorsal view; width of the frons, the head, the pronotum, the elytra, the antennal and palpal segments the widest point; length of the scape in dorsal view, from the apical edge of the dorsobasal impression to the apical margin; length of the antennal segments 2 to 11 without the basal stalks. The pubescence refers to that on the head and body.

The aedeagi have been mounted in Canada balsam on acetate slides and are illustrated using a drawing tube on a compound microscope. The fine structures of the internal sac and the paramere sensilla have been examined using Nomarski interference contrast optics.

TAXONOMY

KEY TO THE JAPANESE GENERA OF BYTHININI

- 1 Abdominal ventrite 4 (2nd exposed) with a pair of laterobasal foveae, lacking a pair of mediobasal foveae. Median lobe of aedeagus with sclerotised internal mediodorsal ridge *Bythoxenites*
- Abdominal ventrite 4 (2nd exposed) with two pairs of basal foveae, the inner pair of foveae connected by a transverse bridge. Median lobe of aedeagus without internal mediodorsal ridge 2
- 2 Scape with an entire, distinct dorsobasal ridge *Bryaxis*
- Scape without, or with incomplete dorsobasal ridge *Tychobythinus*

Tychobythinus Ganglbauer

Three species of *Tychobythinus* are represented within the collections examined, but only one of them is known from the male sex. It is a new species, described below. The other two species are likely new but as each is known in a single female, we find preferable not to name and describe them. Presently, the members of *Tychobythinus* appear to be found sporadically in eastern Asia, with three species occurring in Japan, one in the Kurile archipelago, one in Sichuan, one in Taiwan and one in northern Thailand (LÖBL & KURBATOV, 1995).

KEY TO THE JAPANESE *Tychobythinus*

- 1 Frons not impressed between antennal tubercles. Vertex with distinct tentorial pits. Pronotal punctation fine *T. japonicus*
- Frons impressed between antennal tubercles. Dorsal tentorial pits absent. Pronotal punctation coarse 2
- 2 Maxillary palpi with segment 3 short, slightly longer than wide . . *T. species A*
- Maxillary palpi with segment 3 elongate, about 3 times as long as wide *T. species B*

***Tychobythinus japonicus* sp. n.**

Holotype ♂: Japan, Gifu pref., 9 km E Gero, 470 m, 31.VII.1980, leg. I. Löbl (nr 24); sifted leaf litter and wood on a steep slope in a ravine, near a stream (MHNG).

Length 1.20 mm. Body and appendages uniformly light ochreous. Pubescence semi-erect, long, that on abdomen recumbent.

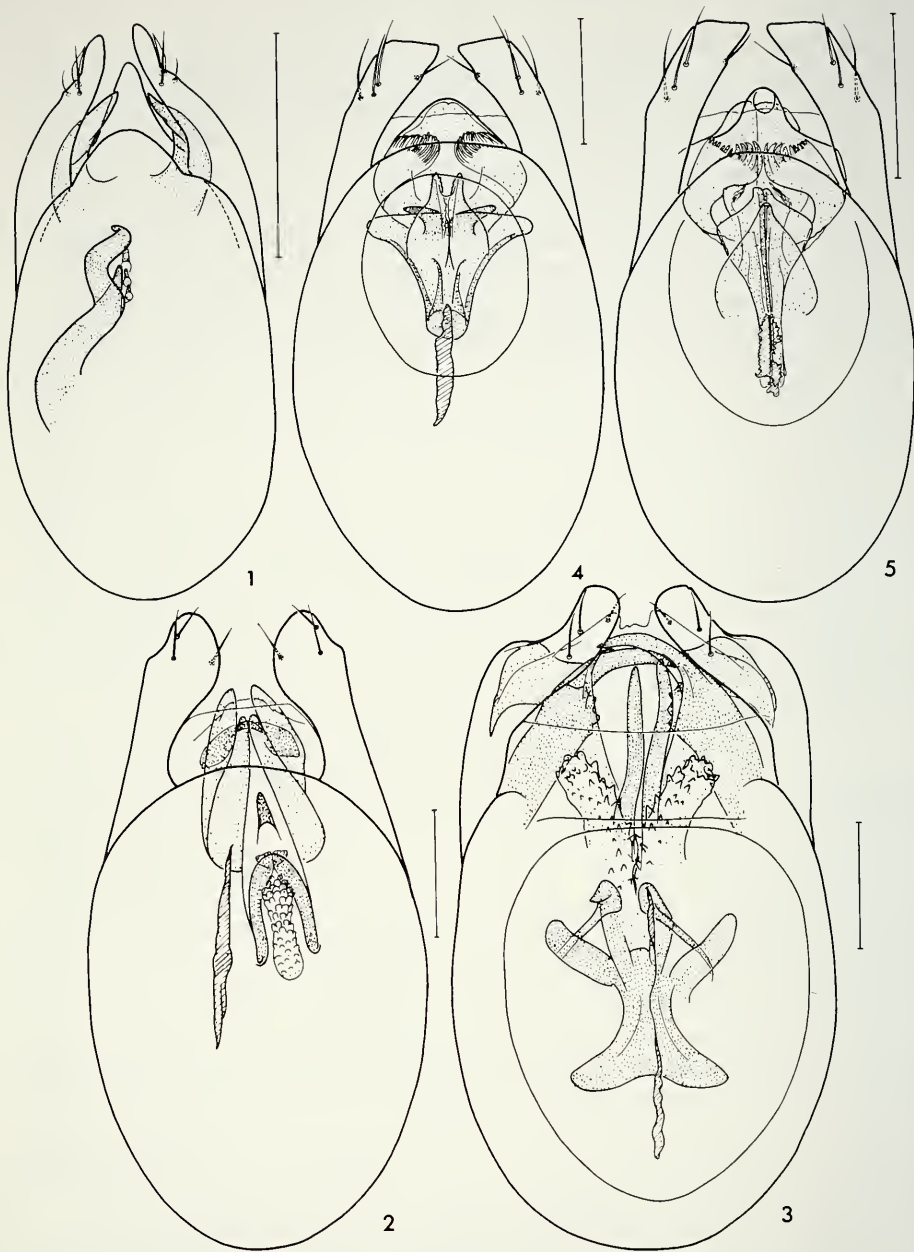
Head 0.25 mm long, 0.24 mm wide. Punctuation coarse and very dense, not confluent, puncture intervals consisting mostly of very narrow ridges, larger on posterior portion of vertex. Most punctures about as large as facets. Frons with four conspicuously large impressed punctures arranged in a rectangle, each bearing a conspicuous, widened seta. Pubescence orientated anteriorly on anterior portion of frons, obliquely mesally on lateral portions of vertex, apically on median portion of vertex. Frons narrow, hardly narrowed posterior to antennal tubercles, widened irregularly toward eyes, with anterior edge distinctly angulate, lateral edges slightly angulate anterior to eyes. Frontal impression absent. Frontoclypeus almost vertical, not projecting below, with clypeal margin convex. Vertex convexly raised. Dorsal tentorial pits situated each in a shallow impression in level of anterior eye margin, small, about as large as surrounding punctures. Interval between tentorial pits almost 10 times as large as diameter of one tentorial pit. Vertex and occiput without median carina. Eyes small, flat, with 6 facets. Maxillary palpi with 2nd segment 0.15 mm long, gradually thickened apically, at apex 0.03 mm wide, tuberculate ventrally; 3rd segment 0.04 mm long, slightly longer than wide, as wide as 2nd segment, bearing a few ventral tubercles; 4th segment stout, 0.18 mm long, 0.06 mm wide.

Antennae fairly short. Scape straight, 0.07 mm long, 0.05 mm wide, cylindrical, not narrowed subbasally in dorsal view; dorsobasal ridge absent, except near lateral edges. Pedicel asymmetrical, about as wide as scape, slightly wider than long. Segments 3 to 10 symmetrical. Segment 3 almost as long as wide. Segments 4 to 8 evenly large, shorter than, and as wide as segment 3, about as long as half of length of pedicel. Segment 9 as long as 8 but wider, almost as wide as pedicel and about 2 times as wide as long. Segment 10 longer and wider than 9, almost 2 times as wide as long. Segment 11 slightly asymmetrical, much longer than scape, about 1.4 times as long as wide, slightly longer than segments 7 to 10 combined.

Pronotum 0.33 mm long, 0.25 mm wide. Punctuation very fine and sparse, discal punctures not clearly delimited, mostly much smaller than intervals between them, punctuation between antebasal sulcus and base fairly coarse and dense, punctures much larger than intervals between them. Discal pubescence longer than that on head, orientated mesally on lateral areas, and orientated apically on median portion; pubescence near base short, orientated anteriorly. Antebasal sulcus deep, fairly wide, with sharp posterior edge. Lateral fovea situated in a large depression.

Elytra 0.44 mm long, combined 0.53 mm wide. Punctuation fine and fairly dense, punctures well delimited, intervals between punctures 3 to 4 times larger than their diameters. Humeral area rounded, slightly raised. Marginal carina visible in dorsal view, touching subhumeral fovea from below.

Metathoracic wings not examined.



FIGS 1-5

Aedeagi in *Tychobythinus* and *Bythoxenites*; 1. *T. japonicus*; 2. *B. longicornis*; 3. *B. brevicornis*; 4. *B. torticornis*; 5. *B. diversicornis*. Scale bars = 0.1 mm.

Metasternum and abdominal sternites evenly very finely punctate; punctuation on median portion of metasternum denser than that on lateral portions of metasternum.

Protibiae straight. Mesotibiae straight, flattened apically. Metatibiae gradually stouter toward apical third, curved and flattened in apical fourth.

Male sexual characters: Frons, vertex, and appendages apparently lacking sexual characters. Head swollen ventrally, anterior to level of eyes, to form a transverse ridge separated from mouthparts by a narrow and shallow impression. Transverse ridge punctate and pubescent ventrally, with posterior surface strongly inflexed and glabrous. Aedeagus (Fig. 1) 0.25 mm long. Parameres abruptly narrowed apically, each with one wide and two slender, hair-like sensilla. Internal sac bearing a pair of apical, symmetrical, curved sclerites and an asymmetrically sinuous median sclerite bearing a ventral apophyse, accompanied by three minute teeth-like sclerites.

Comments. This species shares with *T. aino* Kurbatov the abruptly narrowed apical portion of the parameres. It differs however drastically by the shape of the sclerites of the internal sac of the aedeagus. Externally, it resembles *T. siamensis* from which it may be readily distinguished by the tuberculate 2nd and 3rd segment of the maxillary palpi.

Tychobythinus sp. A

Material: 1 ♀. Japan, Honshu, Gifu pref., 8 km SE Gero, 500 m. 31.VII.1980, leg. I. Löbl (MHNG), in sifted deep layer of rotten wood and leaves on a slope, near a stream.

Comments. This species may be distinguished from other East and Southeast Asian species of *Tychobythinus*, except species B, by the head coarsely and densely punctate, and lack of dorsal tentorial pits. In general appearance it resembles *T. siamensis* Löbl & Kurbatov, but may be easily distinguished by the much lighter body and the conspicuously tuberculate 2nd and 3rd segments of the maxillary palps. *Tychobythinus siamensis* possesses maxillary palpi with segment 3 much shorter than that in species B.

Tychobythinus sp. B

Material: 1 ♀. Japan, Shikoku, Ehime pref., Ishizuchi Nat. Park, Omogo, 12.VIII.1980, leg. C. Besuchet (MHNG).

Comments. This species may be distinguished readily from other Asian species of *Tychobythinus* by the elongate 3rd segment of the maxillary palpi, the scape narrowed subbasally, the pronotal punctures variably large, with edges distinctly raised, and lacking dorsal tentorial pits.

Bythoxenites Jeannel

YOSHIDA & NOMURA (1952) described *Machaerites* (*Bythoxenus*) *japonica* from a limestone cave in Japan, Okutama province, Honsyu. It has been found «allied to *M. (Bythoxenus) Revelieri* Reitter», an European species endemic to Corsica, placed by JEANNEL (1950) in his *Amaurobythus* which is synonym of *Tychobythinus*

(BESUCHET, 1974). According to the description and illustration, *M. japonica* is characterised by the combination of following features: 1) head rugosely punctate; 2) antennae with scape long, about as long as one fourth body length; 3) maxillary palpi with segment 2 tuberculate except at base; 4) segment 4 of the maxillary palpi large, tapering; 5) elytra conspicuously long and gradually widened apically. Jeannel (1958) based his new genus *Bythoxenites* on the description of *Machaerites* (*Bythoxenus*) *japonica*. According to him, this genus differs from the Slovenian *Machaerites* Miller (and, implicitly from *Bythoxenus* Motschulsky) by «numerous characters», particularly the rugosely punctate head.

Nine species exhibit the characters of *Bythoxenites* within the examined collections. In addition, they share an unique aedeagal feature, a sclerified dorsomedian ridge situated below the compression plate of the median lobe. This ridge is not attached to the internal sac, as seen in one specimen which has the internal sac completely extruded. Thus, *Bythoxenites* appears to be one of the few Bythinini genera defined by a robust autapomorphy. Unlike in *Bryaxis* and *Tychobythinus*, the 4th (2nd exposed) abdominal sternite in *Bythoxenites* lacks internal sclerotised structures, the pair of the mediobasal foveae and the basal grooves.

We have not been able to see the type material of *Bythoxenites japonicus* (Yoshida & Nomura), and cannot supplement its description which is lacking in some critical details. The species of *Bythoxenites* we have examined vary in numerous characters, in particular in the size of the antennal and palpal segments. They are notably smaller than *B. japonicus* (which is according to the description 2.2 mm long), and none of them have the maxillary palpi as figured in that species. Thus, we do not hesitate to consider them as new.

YOSHIDA & NOMURA (1952) believed *Bythoxenites japonicus* to be microphthalmous, and compared it to European anophthalmous taxa known to inhabit caves and soil. However, the eyes in male *Bythoxenites* are not reduced. The males have distinct humeral angles which indicate the presence of functional metathoracic wings. In large-eyed males of *B. diversicornis*, *B. frontalis*, and *B. longiceps*, the metathoracic wings are well developed while in females of *B. brevicornis*, *B. diversicornis* and *B. frontalis*, they are absent. The presence of the metathoracic wings has not been examined in the remaining species which are represented by one or two specimens only.

Like in many other Bythinini, the species of *Bythoxenites* exhibit secondary sexual characters on the gular area, the tibiae, and have larger eyes and longer elytra with more distinct humeral angles in males than in females. More unusual are the sexually modified frons and vertex, the tuberculate profemora in males of some species, and the prothorax which are more or less distinctly angulate in males. The antennae are usually similar in both sexes, but the 4th antennal segment is enlarged in male of *B. torticornis* and *B. diversicornis*.

Bythoxenites is similar to *Tychobythinus* and unlike *Bryaxis*, in having the dorsobasal scapal ridge more or less reduced, and the elytral bases not raised. Its relationships are unknown as no attempt has yet been made to analyse the relationships within the Bythinini. Also, the key to the Palaearctic Bythinini genera (BESUCHET, 1974) is inapplicable to *Bythoxenites*.

KEY TO THE SPECIES OF *Bythoxenites*

- 1 Length 2.20 mm *B. japonicus*
- Length 1.55–2.05 mm 2
- 2 Elytral pubescence conspicuously short and recumbent, similar to that on abdomen *B. brevipilis*
- Elytral pubescence not conspicuously short, semi-erect or erect, usually longer than that on abdomen 3
- 3 Punctuation on pronotal centre conspicuously coarser than that on lateral pronotal area *B. brevicornis*
- Pronotum with centre as finely punctate, or centre slightly coarser punctate than lateral portions 4
- 4 Frontoclypeus bearing sparse setae orientated anteriorly or gradually curved ventrally 5
- Frontoclypeus with dense pubescence orientated ventrally 9
- 5 Antenna with segment 9 elongate 6
- Antennae with segments 9 as long as wide, or wider than long 7
- 6 Vertex raised, with short median carina and distinct tentorial pits *B. longicornis*
- Vertex flattened, with long median carina and obsolete tentorial pits species A
- 7 Antennal segment 4 unmodified and symmetrical in male *B. frontalis*
- Antennal segment 4 modified and asymmetrical in male 8
- 8 Male with outer apical angle of antennal segment 4 not prominent. Aedeagus with apical laminae of internal sac ending by a row of evenly narrow denticles *B. torticornis*
- Male with outer apical angle of 4 antennal segment prominent. Aedeagus with apical laminae of internal sac ending by denticles becoming larger toward mid-line *B. diversicornis*
- 9 Antennal segments 9 and 10 each longer than wide *B. longiceps*
- Antennal segments 9 and 10 each shorter than wide *B. pubiceps*

***Bythoxenites longicornis* sp. n.**

Holotype ♂: Japan, Shikoku, Ehime pref., Ishizuchi Mt. Nat. Park, Tsuchigoya, 1400 m, 11–18.VIII.1980, leg. S. & J. Peck, malaise trap-trough *Fagus-Abies* forest (MHNG).

Length 2.0 mm. Body reddish-brown, appendices lighter. Pubescence fairly long, erect on head and pronotum, semi-erect on elytra, almost recumbent on abdomen.

Head 0.40 mm long, with eyes 0.40 mm wide, frons 0.25 mm wide anteriorly. Frontal impression wide and deep, distinctly, irregularly punctate anteriorly, impunctate posteriorly. Antennal tubercles raised, smooth, each narrower than frontal impression. Anterior edge of frons sharply delimited, angular. Frontoclypeus vertical and rounded below, with long setae orientated anteriorly. Frons distinctly narrowed posterior to antennal tubercles, then gradually widened toward eyes. Dorsal edges of genae straight and sharp. Vertex slightly convex. Dorsal tentorial pits inconspicuous,

situated slightly posterior of level of anterior eye margin, much closer to dorsal eye margin than to vertexal mid-line. Vertexal sulci inconspicuous, very shallow and narrow, traceable from tentorial pits to frontal impression. Anterior portion of vertex abruptly delimited by a smooth area obliquely inflexed toward frontal impression. Vertex with high mesal carina starting at level of tentorial pits and ending on inflexed, smooth area. Vertexal punctation coarse and very dense, punctures deep, mostly larger than facets, separated by narrow ridges. Eyes large, convex, prominent, with numerous facets, slightly longer than tempora (lateral view). Tempora rounded. Neck concealed in dorsal view.

Postgenae oblique and strongly inflexed between neck and gular groove, bearing long erect setae curved anteriorly. Gular groove transverse, deep, with sharp anterior and obtuse posterior edges. Posterior edge prominent in middle and bearing two fairly long, horizontal, divergent tufts of setae; anterior edge with two very short, vertical laminae. Area between gular groove and mouthparts impressed, with a low median ridge.

Maxillary palpi with 2nd segment tuberculate; 3rd segment tuberculate apically; 4th segment large, 0.39 mm long, 4 times longer than wide, with concave outer edge.

Antennae long. Scape subcylindrical, in dorsal view straight, about 3 times as long as wide, widest near apex, from widest point gradually narrowed basally and strongly narrowed apically. Scape slightly curved. Pedicel subcylindrical, slightly narrowed basally, in length slightly exceeding width of scape, 1.6–1.7 times as long as wide. Dorsobasal scapal ridge indistinct in middle. Segments 3 to 8 evenly wide, about as wide as two thirds of pedicel. Segment 3 as long as pedicel, 2.5 times as long as wide, narrowed basally. Segments 4 and 5 each shorter than pedicel, evenly long and wide, each about 2 times as long as wide. Segments 6 and 8 shorter than segment 5, evenly long and wide, each about 1.5 times as long as wide. Segment 7 longer than 6 (or 8), slightly shorter than 3, about 2 times as long as wide. Segment 9 and 10 evenly long, each slightly longer than pedicel, 9 about 1.7 times as long as wide, 10 thicker, 1.3 times as long as wide. Segment 11 somewhat longer than 9 and 10 combined, distinctly shorter than scape, 2.5 times as long as wide.

Pronotum 0.46 mm long, 0.50 mm wide. Antebasal sulcus sinuate, not well delimited, widened in middle. Punctation coarse and very dense, irregular, partly confluent between antebasal sulcus and basal edge; intervals between punctures formed by narrow ridges. Punctation fairly dense and very fine on most of area between antebasal sulcus and anterior pronotal edge, with punctures several times smaller than intervals; punctation distinctly denser near anterior edge than middle of disc.

Elytra 0.84 mm long, combined 0.79 mm wide, gradually widened apically, almost regularly vaulted dorsally. Basal foveae deep, well delimited, their diameters slightly smaller than intervals between them. Humeral hump low, elongate. Discal punctation very fine and sparse.

Profemora lacking tubercles. Protibiae straight, gradually stouter toward apical fourth, with a deep subapical notch and sharp denticle. Mesotibiae becoming moderately, gradually stouter toward apical third, rather abruptly curved just before

apical third, almost evenly thick in apical third. Metatibiae almost evenly thick, straight in basal half, slightly curved in apical half, with an apical denticle.

Aedeagus (Fig. 2) 0.505 mm long. Parameres widened and rounded apically, with outer edges angulate subapically; each bearing 3 hair-like sensilla. Internal sac with a pair of symmetrical basal sclerites, a mediobasal vesicle, median denticle and large apical laminae.

Comments. This species may be readily distinguished by the notably elongate antennae, in combination with the raised vertex.

***Bythoxenites brevicornis* sp. n.**

Holotype ♂: Japan, Ehime pref., Mt. Ishizuchi Nat. Park, steep ravin near Skyline Road, 1000 m, 14.VIII.1980, leaf litter and rotten wood, leg. I. Löbl (MHNG).

Paratypes: 3 ♀, Japan, Ehime pref., Mt. Ishizuchi National Park, Omogo Valley, 700 m, 18–25.VIII.1980, S. & J. Peck, moss, fungi & log litter, warm temp. forest (MHNG, CSKM); 1 ♀, same data but Tsuchigoya 1400 m, 16.VIII., log & moss litter (MHNG).

Similar to *B. longicornis* from which it differs as follows:

Length 1.80–1.85 mm. Head, pronotum and elytra dark reddish-brown, abdomen, antennae, palpi, femora and tibiae lighter, tarsi yellow. Pronotal pubescence semi-erect.

Head 0.37–0.40 mm long, with eyes 0.35–0.37 mm wide; frons 0.21–0.23 mm wide; anterior portion of frontal impression coarsely punctate; mesal vertexal ridge lower and longer, hardly extending on anterior inflexed area. Vertexal sulci more distinct. Eyes in ♀ with 11 or 12 facets. Tempora oblique. Segment 4 of maxillary palpi 0.35 mm long, 3 times as long as wide, with straight outer margin. Prominent middle portion of posterior edge of gular groove bearing long horizontal setae divergent anteriorly.

Antennae shorter than those in *B. longicornis*. Scape slightly more than 2 times as long as wide, widest near base, slightly narrowed toward apex; straight in dorsal view, flattened dorsoventrally, with almost flat ventral side. Dorsobasal scapal ridge complete and distinct. Pedicel subcylindrical, 1.4 times as long as wide, as long as scape wide. Segments 3 to 8 evenly wide, as wide as 4/5 of width of pedicel. Segment 3 slightly shorter than pedicel, 1.5 times as long as wide, gradually widened apically. Segments 4 to 6 gradually shorter, 4 and 5 distinctly longer than wide, 6 to 8 evenly long, each about as long as wide. Segments 9 and 10 each as long as segment 3; 9 longer than wide, 10 as long as wide. Segments 11 about as long as segments 8 to 10 combined, 2.2 times longer than wide, hardly shorter and wider than scape.

Pronotum 0.38–0.43 mm long, 0.42–0.46 mm wide; discal punctation strongly irregular; punctures on central area coarse, about as large as those on vertex, regularly round, well delimited, partly larger than intervals between them; discal punctation becoming denser and slightly finer toward anterior edge, much finer toward lateral edges.

Elytra 0.71–0.74 mm long, combined 0.73–0.76 mm wide; diameters of basal foveae as large as intervals between them.

Profemora tuberculate. Mesotibiae straight.

Aedeagus (Fig. 3) 0.54 mm long. Parameres narrowed and rounded apically, with outer edges concave; each bearing 3 hair-like sensilla. Internal sac with X-shaped basal sclerites, two central vesicae, two slender medioapical sclerites, and two large tooth-like apical sclerites.

***Bythoxenites torticornis* sp. n.**

Holotype ♂: Japan, Toyama pref., Arimine, Kaminikawa 1100 m, 29.VII.1980, leg. A. Smetana (MHNG).

Paratype ♂: same data but 1150 m, leg. I. Löbl, bamboo and oak leaf litter at foot of an old oak (MHNG).

Length 1.65–1.70 mm. Head and body uniform reddish-brown, appendages slightly lighter. Pubescence long, semi-erect on head, pronotum and elytra, recumbent on abdomen.

Head 0.36 mm long, as long as wide with eyes; frons 0.18 mm wide anteriorly. Frontal impression wide, deep, coarsely and densely punctate. Antennal tubercles raised, smooth, each slightly narrower than frontal impression. Anterior edge of frons sharply delimited, subangular. Frontoclypeus strongly inflexed and rounded below, with long setae orientated anteriorly. Frons hardly narrowed posterior to antennal tubercles, then strongly widened toward eyes. Dorsal edge of genae sharp, slightly arcuate. Vertex raised. Dorsal tentorial pits conspicuous, situated slightly posterior to level of anterior eye margin, at mid-distance of eye margin and mid-line of vertex. Vertexal sulci deep, smooth, converging toward frontal impression. Vertex with short and low median carina. Vertexal punctation coarse and dense, punctures mostly larger than facets, separated by narrow ridges. Eyes large, convex, prominent, with numerous facets, distinctly longer than tempora in lateral view. Tempora rounded. Neck exposed in dorsal view, wrinkled longitudinally.

Gular area similar to that in *B. longicornis* but impressed area between gular groove and mouthparts lacking median ridge, posteriolateral portion of gular groove not clearly delimited, median portion of postgenae vaulted, bearing long, horizontal, divergent setae.

Maxillary palpi with 2nd segment bearing few inconspicuous, low tubercles on ventral side of apical portion; 3rd segment wider than long, tuberculate; 4th segment relatively small, 0.27–0.29 mm long, 3 times as long as wide, with slightly convex outer margin.

Antennae relatively short. Scape about 2 times as long as wide, subcylindrical, narrowed at base and near apex, slightly flattened ventrally, slightly curved in dorsal view; dorsobasal ridge indistinct in middle. Pedicel as long as scape wide, hardly longer than wide, suboval, more narrowed apically than basally. Segment 3 asymmetrical, slender, slightly curved, gradually stouter apically, slightly longer than pedicel, almost 2 times as long as wide. Segment 4 large, as long as pedicel, thicker than segment 3, about 1.4 times as long as wide. Segments 5 to 8 evenly large, each slightly wider than long and about as wide as segment 3. Segment 9 distinctly smaller than pedicel, slightly wider than long and slightly wider than segment 4. Segment 10

almost as long as pedicel, 1.3 times as long as 9, distinctly wider than long. Segment 11 about as long as segments 8 to 10 combined, longer than scape, about 2 times as long as wide.

Pronotum 0.36–0.37 mm long, 0.43–0.44 mm wide. Antebasal sulcus well delimited, sinuate laterally, angulate and forming a minute notch in middle. Punctuation coarse and dense, partly confluent between antebasal sulcus and basal edge; intervals between punctures variably large, many reduced to narrow ridges. Punctuation fine or very fine on area between antebasal sulcus and anterior pronotal edge, formed by shallow, not well delimited punctures becoming much more dense anteriorly.

Elytra 0.70 mm long, combined 0.71–0.72 mm wide, widest anterior to apical fifth, with lateral edges arcuate. Basal foveae deep, well delimited, smaller than interval between them. Humeral hump low, elongate. Discal punctuation very fine and sparse, punctures situated in centres of minute discs.

Profemora lacking tubercles. Protibiae slightly curved, gradually stouter toward apical fourth, notched and with denticle just before apical fourth. Mesotibiae slightly curved, with inner edge almost straight, outer edge arcuate, gradually stouter toward apical third, then narrowed. Metatibiae in basal two thirds straight and gradually stouter, then curved and evenly thick, with apical denticle.

Aedeagus (Fig. 4) 0.43 mm long. Parameres slightly widened apically, truncate at apex. Each paramere bearing 4 hair-like sensilla. Internal sac with a wide T-shaped basal sclerite, two small, curved central sclerites, two central vesicae, and two curved, weakly sclerotised apical laminae ending by densely denticulate structure.

Comments. This species may be easily distinguished from other species, *B. diversicornis* excepted, by the enlarged 4th antennal segment. It may be separated from *B. diversicornis* by characters given in the key.

***Bythoxenites diversicornis* sp. n.**

Holotype ♂: Japan, Gunma pref., E Usui Pass, 850 m, 24.VII.1980, leg. I. Löbl (nr 19a) deep layers of very moist leaf litter in a ravine (MHNG).

Paratypes: 1 ♂, 2 ♀, as holotype: 1 ♂, 2 ♀ with same data but 900 m, 25.VII. (nr 20b) leaf litter along a log (MHNG, CSKM); 1 ♀, same data but 700 m, 20.VII., leg. A. & Z. Smetana (MHNG).

Similar to *B. torticornis*, from which it differs as follows: Length 1.55–1.65 mm. Head 0.33–0.35 mm long, in ♂ 0.39 mm wide, in ♀ 0.35 mm wide. Median carina of vertex low, extending anteriorly over frontal impression, and ending at level of dorsal tentorial pits in ♂. Median carina of vertex absent from ♀. Eyes in ♀ relatively large, with 11 or 12 facets (♀ unknown in *B. torticornis*). Maxillary palpi with 3rd segment slightly longer than wide; 4th segment 0.28–0.30 mm long, about 3.2 times as long as wide. Scape almost straight in dorsal view. Antennae with pedicel longer than wide; segment 4 with prominent inner apical angle; segment 9 slightly wider than long or as wide as long. Pronotum 0.37–0.40 mm long, 0.40–0.42 mm wide. Antebasal pronotal sulcus widened and angulate in middle, not forming a notch. Elytra 0.70–0.71 mm long in ♂, 0.60–0.65 mm long in ♀, combined 0.67–0.72 mm wide.

Aedeagus (Fig. 5) 0.35–0.37 mm long. Parameres almost evenly wide, with slightly concave inner edge, subangulate outer edge, truncate apically. Each paramere bearing 4 hair-like sensilla. Basal sclerite narrower than in *B. torticornis*; apical sclerotised laminae wider, ending by a row of denticles becoming larger toward mid-line.

***Bythoxenites brevipilis* sp. n.**

Holotype ♂: Japan, Ōyamazuki, Kyoto-Fu, 18.V.1967, K. Sawada (MHNG).

Paratype ♀: same data but 20.V. (MHNG).

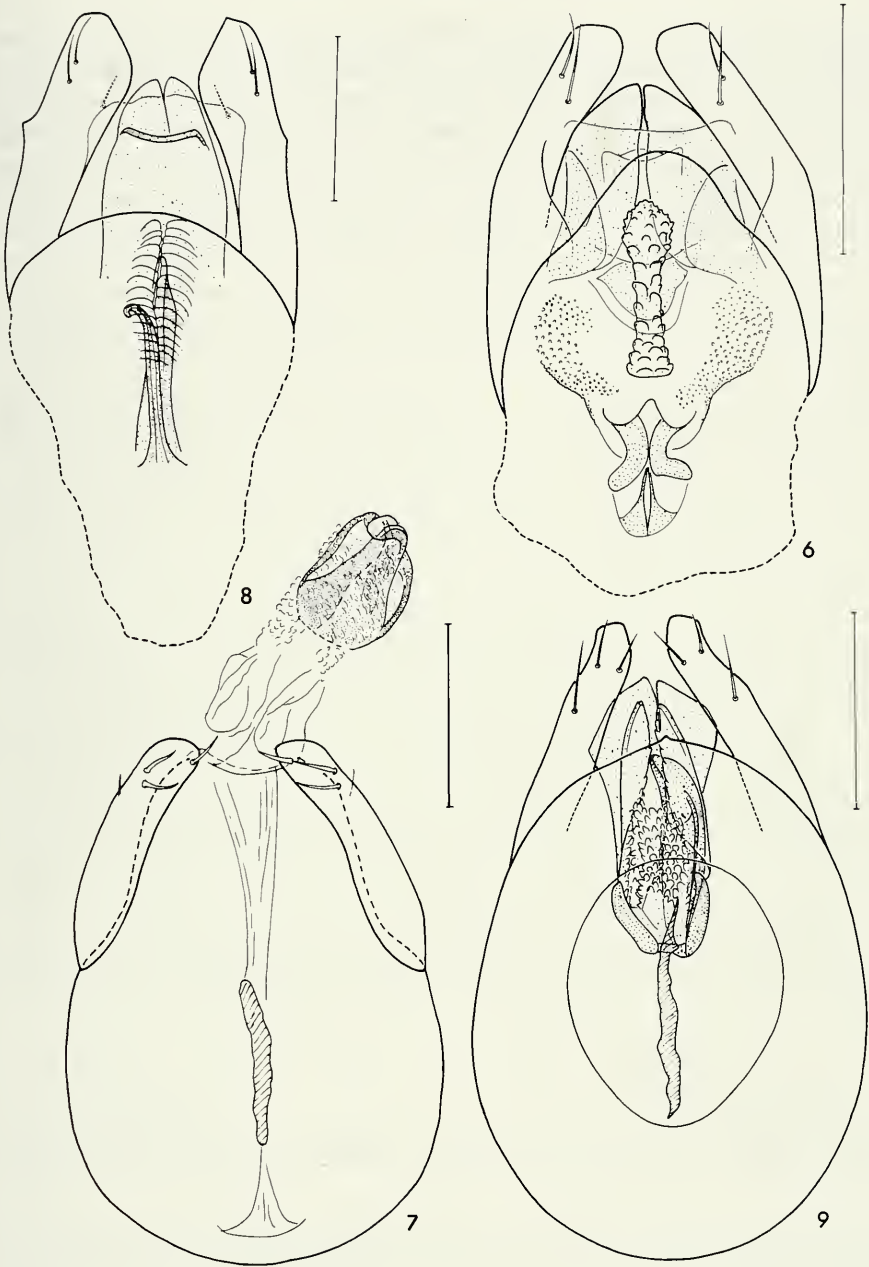
Length 1.55–1.60 mm. Head and body pale reddish-brown, partly translucent. Appendages lighter, scape not as light as remaining antennal segments. Pubescence short and recumbent on elytra and abdomen, longer on head and pronotum.

Head 0.35 mm long, with eyes 0.34 mm wide in ♂, or 0.31 mm wide in ♀; frons 0.15–0.16 mm wide anteriorly. Frontal impression deep and wide, coarsely punctate anteriorly, impunctate posteriorly. Antennal tubercles raised, smooth, each somewhat narrower than frontal impression. Frons anteriorly inflexed, without well delimited anterior edge; frontoclypeus obliquely inflexed, rounded below, with long setae orientated anteriorly. Frons distinctly narrowed posterior to antennal tubercles, then widened toward eyes. Dorsal genal edge sharp, slightly concave or straight. Vertex convexly vaulted. Dorsal tentorial pits distinct, situated in level of anterior eye margin (♂) or in front of level of anterior facets (♀), about at mid-distance between eye margin and mid-line of vertex. Vertexal sulci shallow but distinct, moderately converging toward frontal impression. Anterior portion of vertex delimited in middle by a transverse ridge, and abruptly inflexed, with a pair of setae arising from minute socles (♂), or gradually inflexed and without setae arising from socles. Vertex with mesal carina low but distinct, starting well posterior to tentorial pits, from level of posterior eye margin in ♂, posterior to that level in ♀, extending to inferior posterior edge of frontal impression in ♂, to upper posterior edge of frontal impression in ♀. Most of vertex coarsely and very densely punctate, punctures deep, about as large as facets, separated by ridges or narrow flat intervals. Central portion of vertex and areas near eyes very finely punctate. Eyes in ♂ moderately large, prominent, with numerous facets, much shorter than tempora (lateral view). Eyes in ♀ reduced, with 3 to 5 facets. Tempora slightly rounded. Neck concealed in dorsal view.

Postgenae oblique, moderately inflexed between neck and gular groove, bearing long erect setae. Gular groove similar as in *B. longicornis*; median ridge between gular groove and mouthparts absent.

Maxillary palpi with 2nd segment conspicuously tuberculate, except on basal portion; 3rd segment about as long as wide; 4th segment 0.36–0.37 mm long, 4.2–4.6 times as long as wide, with outer margin slightly concave, at apex slightly inflexed ventrally.

Antennae long. Scape slightly curved, subcylindrical, about 4 times as long as wide in dorsal view, evenly wide in posterior 3/4, narrowed basally, with ventral side flattened. Dorsobasal scapal ridge widely interrupted in middle. Pedicel cylindrical, in



FIGS 6-9

Aedeagi in *Bythoxenites*; 6. *B. brevipilis* (basal portion of median lobe deformed); 7. *B. pubiceps* (internal sac extruded); 8. *B. longiceps* (basal portion of median lobe deformed); 9. *B. frontalis*. Scale bars = 0.1 mm.

length exceeding width of scape, almost 1.7 times as long as wide. Segments 3 to 8 elongate, subcylindrical or cylindrical, evenly wide. Segment 3 almost 1.7 times as long as wide, as long as $2/3$ of pedicel. Segments 4 and 5 slightly shorter than segment 3, each 1.5 times as long as wide. Segment 6 to 8 slightly shorter than segments 4 or 5. Segment 9 about 1.2 times as long as wide, distinctly shorter and slightly wider than pedicel. Segment 10 slightly larger than 9, almost as wide as scape, slightly longer than wide. Segment 11 almost as long as segments 7 to 10 combined, about 2.5 times as long as wide, shorter and wider than scape.

Pronotum 0.37–0.38 mm long, 0.39–0.40 mm wide. Antebasal sulcus sinuate, well delimited, not widened in middle. Punctuation between antebasal sulcus and base irregular, partly coarse and dense, not confluent. Lateral portions of disc extremely finely punctate. Middle portion of disc irregularly punctate in ♂, with punctures mostly shallow, about as large as coarse punctures situated between antebasal sulcus and basal edge; most of discal punctuation extremely shallow and hardly visible in ♀.

Elytra 0.69–0.74 mm long, combined 0.70 mm wide. Basal area obliquely inflexed, not raised. Basal foveae deep, well delimited, hardly half as large as interval between them. Humeral hump low in ♂, absent from ♀. Discal punctuation extremely fine.

Profemora tuberculate. Protibiae straight, becoming gradually stouter apically, with deep subapical notch and denticle in ♂. Mesotibiae hardly curved, becoming stouter toward middle, evenly thick in apical half. Metatibiae becoming slightly stouter toward apical third, in apical third curved, with an apical denticle in ♂.

Aedeagus (Fig. 6) damaged, about 0.25 mm long. Parameres with apical portion evenly wide, straight outer edge and almost straight inner edge; apex of parameres truncate or hardly rounded. Each paramere with 2 hair-like subapical sensilla. Internal sac with two small, curved basal sclerites and one median vesica lying over a central plate. Apical portion of internal sac consisting of weakly sclerotised plates.

Comments. This species may be distinguish by the elytral pubescence which is recumbent and much shorter than the pronotal pubescence, the long tempora, and the coarse pronotal punctuation in the ♂.

***Bythoxenites pubiceps* sp. n.**

Holotype ♂: Japan, Nagano pref., J.E. Kogen National Park, Shiga, 1500 m, 23.VII.1980, leg. I. Löbl. moist leaf litter and soil sample on rocky ground of a steep slope (MHNG).

Length 1.75 mm. Head and body uniformly reddish-brown, appendages lighter. Pubescence short, semi-erect on head, pronotum and elytra, recumbent on abdomen.

Head 0.39 mm long, with eyes 0.40 mm wide; frons 0.22 mm wide anteriorly. Frontal impression deep, wide and short, finely and sparsely punctate, ending abruptly just posterior to level of antennal insertion. Anterior portion of frons impressed between antennal tubercles but distinctly raising above frontal impression, coarsely

and very densely punctate, prominent in middle. Frontoclypeus vertical, rounded and wide, covered by short dense pubescence orientated ventrally. Antennal tubercles raised, smooth, each slightly narrower than frontal impression. Frons distinctly narrowed posterior to antennal tubercles, then gradually widened toward eyes, with dorsal edges of genae straight and sharp. Vertex strongly raised, except for flat lateral portions. Dorsal tentorial pits inconspicuous, situated somewhat posterior to level of anterior eye margin, slightly closer to eye margin than to vertexal mid-line. Vertexal sulci shallow, consisting of smooth narrow lines converging toward frontal impression. Middle, raised anterior portion of vertex abruptly delimited by an angular carina and strongly inflexed toward frontal impression. Inflexed area smooth. Mesal carina of vertex fairly high, extending anteriorly over smooth inflexed area, and, apically, over raised dorsal portion of vertex. Vertexal punctation very dense, consisting of coarse punctures on raised middle area; punctures about as large as facets, separated by narrow ridges. Punctation on lateral portions of vertex consisting of much smaller punctures. Eyes large, convex, prominent, with numerous facets, longer than tempora in lateral or dorsal view. Tempora rounded. Neck with a single, low dorsomedian ridge.

Postgenae strongly inflexed ventrally between neck and gular groove. Gular area similar to that in *B. longicornis*, but setae arising from prominent middle portion of posterior edge of gular groove orientated toward bottom of groove. Area between gular groove and mouthparts inflexed, with low median ridge.

Maxillary palpi with 2nd segment tuberculate, except on slender basal portion; 3rd segment hardly longer than wide, tuberculate; 4th segment 0.34 mm long, about 3.5 times as long as wide, with outer margin almost straight.

Antennae short. Scape straight and subcylindrical in dorsal view, about 2 times as long as wide; curved and with slightly concave ventral side in lateral view. Pedicel subcylindrical, narrowed basally, slightly longer than wide, in length hardly exceeding width of scape. Segment 3 elongate, about 1.5 times as long as wide, somewhat shorter than pedicel. Segments 4 to 8 evenly large, each as large as segment 3 and as large as long. Segment 9 as long as segment 3, slightly wider than long. Segment 10 as long as 9, but distinctly wider. Segment 11 about 2 times as long as wide, as long as segments 8, 9 and 10 combined, slightly longer than scape.

Pronotum 0.42 mm long, 0.46 mm wide. Antebasal sulcus sinuate, well delimited posteriorly, not widened in middle. Punctation very dense between antebasal sulcus and basal edge, consisting of irregular, partly confluent, mostly deep and fairly large punctures. Punctation rather dense and evenly very fine on area between antebasal sulcus and anterior edge, with punctures several times smaller than intervals between them.

Elytra 0.75 mm long, combined 0.79 mm wide, with lateral edges rounded in apical half, almost evenly vaulted dorsally. Basal foveae deep, well delimited, distinctly smaller than interval between them. Humeral hump fairly high, elongate. Discal punctation very fine and sparse, punctures about as small as those on middle portion of pronotum.

Profemora with several extremely low tubercles grouped near base. Protibiae slightly curved, gradually stouter toward deep subapical notch, with subapical

denticle. Mesotibiae straight in basal half, gradually stouter toward middle, curved in apical half and narrowed from middle to apex. Metatibiae straight and becoming stouter toward apical third, distinctly curved and evenly wide in apical third, with apical denticle.

Aedeagus (Fig. 7) 0.28 mm long. Parameres almost evenly wide, with sinuate inner edge, irregular rounded outer edge. Each paramere with 3 hair-like subapical sensilla. Internal sac with a basal complex sclerite (extruded and thus apical in the unique known specimen).

Comments. This species may be distinguished by the shape of the frons in combination with the short frontoclypeal pubescence.

***Bythoxenites longiceps* sp. n.**

Holotype ♂: Japan, Gifu pref., Nojiri A-cave, 21.XI.1971, leg. M. Tanaka (MHNG).

Length 2.05 mm. Ochreous, elytra, antennae and legs lighter than head, pronotum, abdomen and maxillary palpi (examined specimen is likely teneral). Pubescence fairly short, semi-erect on head, pronotum and elytra, recumbent on abdomen.

Head 0.43 mm long, with eyes 0.38 mm wide; frons 0.25 mm wide anteriorly. Frontal impression wide and deep, narrowed posteriorly, gradually inflexed anteriorly to form upper surface of strongly prominent frontoclypeus; with very dense, irregular punctation. Anterior frontal edge subangular. Antennal tubercles raised, smooth, each much narrower than frontal impression. Frontoclypeus narrowed mesally, bearing dense recumbent pubescence orientated ventrally. Frons strongly narrowed posterior to antennal tubercles, then gradually widened toward eyes. Dorsal genal edge straight, sharply delimited. Dorsal tentorial pits situated slightly posterior to level of anterior eye margin, at mid-distance from eye margin to vertexal mid-line. Vertexal sulci distinct, narrowed and converging anteriorly, fairly deep, smooth, vanishing just before reaching frontal impression. Middle of vertex raised, with anterior surface strongly inflexed and smooth, delimited by an inverted V-shaped ridge. Posterior portion of vertex rounded. Mesal carina high, starting posterior to level of tentorial pits, extended anteriorly over inflexed and smooth mesal surface, reaching frontal impression. Neck and posterior portion of vertex with a median ridge narrowly separated from vertexal carina. Vertexal punctation very dense and fairly coarse, punctures irregularly large, mostly smaller than facets, partly confluent, separated by narrow ridges. Eyes large, prominent, with numerous facets, as long as tempora in lateral view. Exposed dorsal surface of neck irregularly wrinkled, with distinct median ridge.

Postgenae strongly inflexed between neck and gular groove, bearing long curved setae. Area between ventral tentorial pit and neck with a fairly high mediobasal carina. Gular groove similar as in *B. longicornis*, deep, with posterior and lateral edges obtuse. Posterior edge prominent in middle and bearing two horizontal, divergent tufts of setae. Anterior edge with two vertical, mesally converging laminae. Area between mouthparts and gular groove impressed, with a median ridge.

Maxillary palpi with 2nd segment tuberculate, except in basal third; 3rd segment slightly longer than wide, tuberculate; 4th segment large, 0.43 mm long, almost 5 times as long as wide, with concave outer margin.

Antennae long. Scape in dorsal view straight, cylindrical, almost 4 times as long as wide, with dorsobasal impression and ridge obsolete. Scape in frontal view slightly curved, narrowed toward base, hardly flattened ventrally. Pedicel subcylindrical, slightly narrowed basally, in length exceeding width of scape, about 1.5 times as long as wide. Segments 3 to 8 evenly wide, about as wide as 3/4 of pedicel. Segments 4 and 5 evenly large, slightly shorter than segment 3. Segments 6 to 8 evenly large, slightly shorter than segment 5. Segments 9 and 10 evenly long, each hardly shorter than pedicel, 9 slightly longer than wide, 10 as long as wide. Segment 11 somewhat longer than segments 9 and 10 combined, slightly shorter than scape, about 2.2 times as long as wide.

Pronotum 0.46 mm long, as long as wide. Antebasal sulcus sinuate, deep, well delimited posteriorly, not widened in middle. Punctuation coarse and very dense between antebasal sulcus and base, consisting of fairly regularly large punctures; intervals between punctures much smaller than puncture diameters. Punctuation rather dense and extremely fine on entire area between antebasal sulcus and anterior pronotal edge.

Elytra 0.80 mm long (somewhat deformed, width not measured). Basal foveae deep, well delimited, slightly smaller than interval between them. Humeral hump low, elongate. Discal punctuation sparse and very fine, consisting of punctures slightly larger than those on pronotal center.

Profemora not tuberculate. Protibiae straight, becoming gradually stouter toward subapical notch, with distinct subapical denticle. Mesotibiae hardly curved, becoming stouter toward apical third. Metatibiae almost evenly stout, slightly curved in apical third, with apical denticle.

Aedeagus (Fig. 8) damaged, about 0.50 mm long. Parameres gradually widened toward apex, with angulate outer and apical edges; inner edge almost straight. Each paramere with 3 hair-like subapical sensilla. Internal sac simple, with slender basal sclerites and wide apical plate.

Comments. This species may be distinguished by the elongate head and the shape of the frons and the vertexal carina.

***Bythoxenites frontalis* sp. n.**

Holotype ♂: Japan, Gunma pref., 4 km SW Tsumagoi, 1050 m, near a river, 18.VII.1980, leg. I. Löbl (nr 7b) leaf litter at foot of a steep rocky slope (MHNG).

Paratypes: 7 ♂, 24 ♀, as holotype (MHNG, PCSK); 3 ♂, 8 ♀, Nagano pref., J.E. Kogen Nat. Park, Shiga, 1500 m, forest in a ravine, 23.VII.1980, leg. I. Löbl (nr 17b + c), moist leaf litter, humus, and under bark of *Abies* (MHNG, CSKM); 1 ♂, Gunma pref., below Usui Pass, 850 m, 24.VII.1980, leg. I. Löbl (nr 19b) forest leaf and wood litter on a slope, in a ravine (MHNG); 1 ♀, same data but 750 m, 20.VII. (nr 12b) leaf litter along a small stream (MHNG); 1 ♀, same data but 900 m, 25.VII. (nr 20b) in leaf and wood litter along a log (MHNG).

Length 1.40–1.60 mm. Head and body uniformly reddish-brown, appendages lighter. Pubescence long, semi-erect on head, pronotum and elytra, recumbent on abdomen.

Head 0.34–0.36 mm long, with eyes 0.33–0.36 mm wide in ♂, and 0.31–0.32 mm wide in ♀. Frons anteriorly 0.19–0.20 mm wide. Frontal impression wide and punctate, in ♂ shallow and very short, not extending posterior to level of antennal tubercles, in ♀ deep, much longer than in ♂, similar to that in other species of the group. Frons in ♂ delimited from above by minute transverse ridge; surface inflexed toward frontal impression smooth, but with two long setae orientated anteriorly. Antennal tubercles raised, smooth, each distinctly narrower than frontal impression. Anterior edge of frons sharply delimited, prominent and angulate. Frontoclypeus almost vertical, rounded below, with long setae orientated anteriorly. Frons narrowed posterior to antennal tubercles, then widened gradually toward eyes. Dorsal genal edge straight and sharp. Vertex relatively flat. Dorsal tentorial pits situated in a small impression, at level of anterior eyes margin in ♂, slightly anterior to anterior eye margin in ♀. Vertexal sulci inconspicuous, very narrow and shallow, traceable from tentorial pits to frontal impression. Mesal carina evenly low from frontal impression to level of tentorial pits in ♂, shortened in ♀. Area on each side of mesal carina in same level as, or slightly below level of, vertex, moderately raised above lateral edges, irregularly and finely punctate in ♂, more coarsely punctate in ♀. Punctuation on vertex and along lateral edges of frons coarse and very dense, many punctures larger than facets, separated by narrow ridges, sometimes confluent. Eyes in ♂ large, prominent, with numerous facets, longer than tempora in lateral view. Eyes in ♀ small but prominent, consisting of 12 to 14 facets, shorter than tempora in lateral view. Tempora rounded. Neck dorsally with a median ridge and irregular fine punctuation, or finely rugose.

Postgenae oblique and strongly inflexed, bearing long setae curved anteriorly. Gular groove in ♂ transverse, deep, with sharp anterior, obtuse posterior edges. Posterior edge prominent in middle and bearing two flat, obliquely divergent horizontal tufts of short setae; anterior edge of gular groove with two minute vertical laminae. Area between gular groove and mouthparts impressed, with a low median ridge.

Maxillary palpi with 2nd segment bearing low apical tubercles; 3rd segment tuberculate; 4th segment 0.27–0.30 mm long, about 3 times as long as wide, with slightly convex outer margin.

Antennae fairly short. Scape subcylindrical, about 2 times as long as wide, somewhat narrowed apically, flattened ventrally, with straight posterior edge and slightly convexly rounded anterior edge in dorsal view. Dorsobasal scapal ridge indistinct, except laterally. Pedicel elongate-oval, as long as scape wide, 1.4 times as long as wide. Segments 3 to 8 evenly wide. Segment 3 elongate, shorter than pedicel, as wide as 4/5 of pedicel. Segment 4 as long as wide. Segments 5 to 8 each slightly shorter than 4. Segments 9 and 10 slightly shorter than 3, both distinctly wider than long, segment 10 larger than 9. Segment 11 about 2 times as long as wide, as long as segments 8 to 10 combined.

Pronotum 0.37–0.39 mm long, 0.40–0.42 mm wide. Antebasal sulcus sinuate, well delimited, widened in middle. Punctuation irregular, coarse and very dense, partly

confluent between antebasal sulcus and basal edge; intervals between punctures formed mostly by narrow ridges. Punctuation sparse and very fine on area between antebasal sulcus and anterior pronotal edge, some specimens with large but extremely shallow punctures on centre of pronotal disc.

Elytra 0.65–0.68 mm long in ♂, 0.60–0.64 mm long in ♀, combined 0.64–0.72 mm wide. Basal foveae deep, well delimited, smaller than interval between them. Humeral hump low but distinct in ♂, obsolete in ♀.

Profemora lacking tubercles. Protibiae in ♂ slightly curved, gradually stouter toward apical third, with shallow subapical notch and small denticle. Mesotibiae in ♂ straight and becoming gradually stouter toward apical third, in apical third evenly thick and curved. Mesotibia in ♀ becoming stouter toward middle and curved in middle portion. Metatibiae in both sexes becoming slightly stouter toward middle, slightly curved in apical half.

Aedeagus (Fig. 9) 0.32–0.35 mm long. Parameres slightly narrowed apically, with almost straight inner edge, outer edge concave near apex, each paramere bearing 3 hair-like sensilla. Internal sac with two small, basal, elongate denticles, one long curved central sclerite, two weakly sclerotised apical laminae, and a central membranous vesicle.

Comments. This species may be readily identified by the very short frontal impression in ♂.

Bythoxenites species A

Material: 1 ♀, Japan. Tochigi pref., Nikko Nat. Park, Chuzenji, 1350 m, 14.VII.1980, leg. I. Löbl (no 1); bamboo leaf litter with rotten wood at a forest edge (MHNG).

This specimen may be distinguished by the following characters: Length 1.75 mm; pubescence long and semi-erect (except on abdomen); anterior edge of frons prominent; frontoclypeus narrowed mesally to form a keel, bearing long erect setae; vertex flattened, with mesal carina very low, extending from edge of frontal impression to transverse ridge of neck; eyes prominent, with 11 or 12 facets; antennae with pedicel and 3rd segment evenly long, segments 4 to 6 gradually shorter, 6 to 8 evenly long; maxillary palpi with 4th segment about 4 times as long as wide; pronotum very finely punctate between antebasal sulcus and anterior pronotal edge.

The specimen obviously represents a distinct species. In absence of the knowledge of the male sexual characters, we cannot define it adequately, and prefer not to name it.

ACKNOWLEDGEMENTS

Mr S. Hisamatsu, Matsuyama, provided useful information on collecting sites in Shikoku. His hospitality made the stay of the senior author to Japan very pleasant. Drs Jarmila Kukalova-Peck, Stewart B. Peck, Kohei Sawada, Ales Smetana, and Masahiro Tanaka provided interesting additional material. The comments of Donald S. Chandler led to improvement of the paper and are gratefully acknowledged.

REFERENCES

- BESUCHET, C. 1974. Les Psélaphides cavernicoles de l'Espagne (Coleoptera, Pselaphidae). *Miscellanea Zoológica* 3: 41–69.
- JEANNEL, R. 1950. Coléoptères Psélaphides. Faune de France, 53: i–iii, 1–421.
- JEANNEL, R. 1958. Révision des Psélaphides du Japon. *Mémoires du Muséum national d'histoire naturelle, Série A, Zoologie* 18: 1–138.
- KURBATOV, S.A. 1994. Les *Bryaxis* de l'Extrême-Est de la Russie (Coleoptera, Pselaphidae). *Russian Entomological Journal* 3: 39–47.
- LÖBL, I. & S.A. KURBATOV. 1995. New *Tychobythinus* (Coleoptera, Staphylinidae, Pselaphinae) from East and Southeast Asia. *Mitteilungen der Schweizerischen entomologischen Gesellschaft* 68: 297–304.
- LÖBL, I. & S.A. KURBATOV. 1996. The *Bryaxis* of Taiwan (Coleoptera: Staphylinidae: Pselaphinae). *Bulletin of National Museum of Natural Science* (in press).
- NOMURA, S. 1995. Taxonomic notes on *Bryaxis koltzei* (Reitter) and its allied new species from Japan (Coleoptera, Pselaphidae). *Esakia* 35: 129–134.
- YOSHIDA, A. & S. NOMURA. 1952. A list of Arthropoda in the limestone caves in Kantô-Mountainland, with the description of a new genus and three species. *Chûhō* 6: 1–8, 2 pls.